DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 44, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Travaglini (U.S. Patent No. 5,731,014, already of record) in view of Bryce (Bryce, Douglas M., *Plastics Injection-Molding Manufacturing Process Fundamentals*, Society of Plastics Engineers, Dearborn, MI, pages 72-78, already of record), and further in view of Egger (U.S. Patent No. 4,421,469). Regarding claim 44, Travaglini teaches a stack injection mold apparatus (see column 8, line 58 and Figure 7) comprising a moving core assembly (see column 8, lines 58-60; see core part 52 and mold base 104 in Figure 7) and a stationary core assembly which faces opposite the direction of the moving core assembly (see Figure 7, wherein the incompletely illustrated mirror image of core part 52 and mold base 104 are mounted on the stationary platen), each core assembly including a master core plate (see mold base 104 in Figure 7) and a core plate (see core part 52 in Figure 7) releasably secured to the master core plate (see column 8, lines 58-59, wherein core plate 52 is mounted to mold base 104 and can therefore inherently be unmounted from the mold base as well; see also column 5, lines 15-35, wherein a mold assembly comprising a core part and a

cavity part is removable from the mold base). While the mold apparatus depicted in Figure 7 of Travaglini does not show a core insert secured to the each of the core plates, Travaglini separately teaches the use of such core inserts in prior art stack molds (see core inserts 102 in Figure 2b), as is well known in the art. The stack injection mold apparatus taught by Travaglini further comprises an intermediate cavity assembly (see column 8, lines 60-61; see cavity part 53, intermediate member 110, and the unlabeled hot runner nozzles in Figure 7) comprising central manifold plates having opposing sides, one side facing the stationary core assembly and the other side facing the moving core assembly (see Figure 7, where the left side of the left intermediate member 110 faces the moving core assembly and the right side of the right intermediate member faces the stationary core assembly), one cavity plate releasably secured to each opposing side of the manifold plates with one cavity plate facing the core plate of the stationary core assembly and the other cavity plate facing the core plate of the moving core assembly (see Figure 7, wherein cavity plates 53 are attached to intermediate members 110; as above, cavity plates 53 are part of the mold assembly which can be removed from the mold and therefore they must be releasably secured). While the mold apparatus depicted in Figure 7 of Travaglini does not show a cavity insert secured to each of the cavity plates, Travaglini separately teaches the use of such cavity inserts in prior art stack molds (see cavity inserts 112 in Figure 2b), as is well known in the art. As modified with the core and cavity inserts shown in Figure 2b, the cavity and core plates and inserts together form the cavities of the mold (see Figure 7, where the cavities are depicted as thin plates between plates 51 and 53). The cavity

assembly and moving core assembly taught by Travaglini are movable by moving mold press means in such a manner that the cavity and core inserts are separated by equal amounts on either side of the cavity assembly when the mold is in an open position (see column 2, lines 58-60 and Figure 2c), and the cavity and core inserts are mated together simultaneously defining a cavity between each pair of inserts (see Figure 7) into which molten plastic may be injected from a molten plastic source to form the shape of a desired article (see column 2, lines 61-65). In Figures 3A, 4, and 6, Travaglini depicts embodiments of the mold assembly which is to be removed from the mold base as a unit (see column 5, lines 31-35). Each mold assembly comprises a core plate 50, a cavity plate 53, and, as modified above, core and cavity inserts.

Apart from teaching that the mold assemblies are to be removed from the mold apparatus as separate units, Travaglini is silent regarding any adaptations which may support the removal operation. Bryce teaches the details of the well known procedures for installing a mold in an injection molding machine, which one of skill in the art recognizes would be followed essentially ***in reverse*** for removing a mold from a machine. Thus, in order to remove the mold assemblies taught by Travaglini from the stacked injection mold apparatus, one would first close the mold completely (see Bryce, step 11, page 76), attach a connecting strap between the core and cavity halves of the mold assembly (see Bryce, step 10, page 75 and the connecting strap shown in Figure 4-1 on page 73), and attach a hoisting mechanism such as a chain fall hook to the connecting strap (see Bryce, step 10, page 75). The clamps holding the mold to one of the platens would then be removed (see Bryce, step 9, page 75) and the clamp unit

operated to separate the platens such that the mold assembly is separated from the platen from which the clamps were removed (see Bryce, step 8, pages 74-75). The clamps holding the mold to the other platen would then be removed (see Bryce, step 7, page 74) and the mold assembly raised with the hoisting mechanism to remove it from the mold clamp area (see Bryce, step 4, pages 72-73). One of skill in the art recognizes that, because the hot runner nozzles in the intermediate cavity assembly protrude into the cavity plates, the proper order for removing the mold assemblies from the stack mold shown in Figure 7 of Travaglini would be removing the clamps holding the mold assemblies to the intermediate assembly, opening the clamp unit so that the mold assemblies are clear of the hot runner nozzles, removing the clamps from the other platens, and hoisting the mold assemblies out of the mold clamp area. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini with means for securing the mold assemblies together along their peripheries because it is not safe to allow the parts of the assemblies to separate while they are being moved (see Bryce, step 1, page 72).

While Travaglini and Bryce do not teach hoisting both mold assemblies simultaneously, it would have been obvious to one of ordinary skill in the art at the time of the invention to do so because it would result in less downtime on the molding machine than removing the mold assemblies individually. One of skill in the art recognizes that the steps taught by Bryce, whether for installing or removing a mold, can require a considerable amount of time.

Travaglini and Bryce do not teach a mold apparatus comprising a hoist attachment with stops at each end such that the mold assemblies are slidably engaged to the hoist attachment in the direction of opening and closing of the mold machine. Egger teaches a hoist attachment for removing a molding tool from an injection molding machine (see column 1, lines 36-46). The hoist attachment taught by Egger provides for slidable engagement with the molding tool in the direction of opening and closing of the mold (see column 3, line 66 through column 4, line 5 and transport mechanism 6, trolley 26, hoist 28, and gripping mechanism 29 in Figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini and Bryce with the slidably engaged hoist attachment taught by Egger for the benefit of automating and reducing the time required for the exchange of mold assemblies (see Egger, column 2, lines 15-20). The hoist attachment taught by Egger would enable the mold assemblies to be moved between the closed position wherein the connecting straps would be attached and the open position wherein the mold assemblies are clear of the hot runner nozzles (see Egger, column 4, lines 30-46). Since Egger teaches that the removal of the mold tool can be fully automated, it would have been obvious to one of ordinary skill in the art at the time of the invention to have provided stops on the ends of the hoist attachments to limit movement of the mold assemblies so that there would be no possibility that the mold assemblies could unintentionally hit other portions of the molding machine. Such stops could either be physical blocks limiting the movement of the trolley or software stops in the control system which would serve the same purpose.

Regarding claim 51, Travaglini teaches an apparatus further comprising an ejector plate operable to assist in the ejection of the molded article (see column 6, lines 49-53).

Regarding claim 52, Travaglini is silent regarding means for connecting the various mold sections. Bryce teaches connecting straps between the core and cavity portions of the mold (see step 1, page 72) as well as clamps holding plates in place (see step 7, page 74 and step 9, page 75). While Bryce does not explicitly recite removable straps and clamp bars, the clamps taught by Bryce serve the same purpose and are well known alternatives. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini with means for securing the mold assemblies together along their peripheries because it is not safe to allow the parts of the assemblies to separate while they are being moved (see Bryce, step 1, page 72).

3. Claim 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, and Egger as applied to claim 44 above, and further in view of Martin (U.S. Patent No. 5,350,289, hereinafter "the '289 patent", already of record). Travaglini, as modified by Bryce and Egger, does not teach roller guides secured to the master core plates which rollingly engage the core plates and form a guide path perpendicular to the motion of the mold machine. Regarding claim 45, the '289 patent teaches a mold apparatus comprising modular mold assemblies including core and cavity sections and master core plates which remain in the molding machine when the modular mold assemblies are removed (see Figures 1 and 3). The

master core plates taught by the ‘289 patent comprise roller guides secured thereto which guide the mold assembly along a path perpendicular to the motion of the mold machine (see rollers 67 in Figures 1 and 3). Regarding claim 46, the ‘289 patent teaches clamps positioned along the guide paths which clamp the mold assembly to the master core plate at the position of the guide path (see clamps 153 in Figure 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini, Bryce, and Egger with the roller guides and clamps taught by the '289 patent for the benefit of capturing and carefully guiding the mold assemblies along the master core plates when removing and installing them in the mold machine (see the '289 patent, column 4, lines 55-60).

4. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, Egger, and the ‘289 patent as applied to claim 46 above, and further in view of Martin (U.S. Patent No. 5,562,935, hereinafter “the ‘935 patent”, already of record). The ‘289 patent teaches a method wherein the roller guides guide the core plate relative to the master core plate along a contoured slot defined in the core plate, the slot shaped to allow the core plate to move vertically and parallel to the master core plate for an initial distance and then spaced away from the master core plate for a further distance (see column 3, lines 35-50), but does not teach that the contoured slot causes disengagement of quick disconnect couplings between plates. In an extension of the '289 patent, the '935 patent teaches a mold assembly wherein water conduits and connector plates are provided, as well as quick disconnects (see disconnects 310 and 311 in Figures 7, 10, and 11) which are automatically connected

and disconnected when the mold assembly is inserted and removed, respectively from the adapter plates 304 and 305 (see column 8, lines 16-19). Since the disconnects 310 and 311 are configured in a vertical direction (see Figure 7), it would be obvious to one of skill in the art that lifting the mold assembly in the vertical direction, guided by the roller guides, would result in disengagement of the quick disconnect couplings. It would have been obvious to one ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini, Bryce, Egger, and the '289 patent with the quick disconnects taught by the '985 patent for the benefit of simplifying the mold removal process and ensuring proper connection upon mold installation (see the '985 patent, column 8, lines 28-32).

5. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, and Egger as applied to claim 44 above, and further in view of Rozema (U.S. Patent No. 5,846,472, already of record). While Travaglini, Bryce, and Egger do not teach an apparatus wherein the positions of the cavity plates and cavity inserts are interchanged with the positions of the core plates and core inserts, such stack injection mold apparatus are known in the art. For example, Rozema teaches an injection mold with this configuration (see Figure 1). It would have been obvious to one of ordinary skill in the art to have modified the apparatus taught by Travaglini, as modified by Bryce and Egger, with the core and cavity configuration taught by Rozema for the benefit of providing rapid mold change capabilities in the known mold configuration taught by Rozema.

6. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, Egger, and Rozema as applied to claim 48 above, and further in view of Fruntzek (U.S. Patent No. 4,702,685). Travaglini, Bryce, Egger, and Rozema are silent regarding means for connecting and disconnecting water, air, and electrical utilities in the mold. The use of quick disconnect couplings in modular mold systems is well known in the art. For example, Fruntzek teaches a mold in which water, air, and electrical connections are positioned in the line of opening so that they may be automatically coupled and uncoupled as the mold is installed (see column 7, lines 6-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini, as modified by Bryce, Egger, and Rozema, with the quick disconnect configuration taught by Fruntzek for the benefit of automatically coupling and uncoupling the utility connections to the mold sections.

7. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, and Egger as applied to claim 44 above, and further in view of Showers (U.S. Patent No. 1,928,213, already of record) and Skubic (U.S. Patent No. 3,028,186, already of record). Travaglini, as modified by Bryce and Egger, teaches an apparatus comprising a sliding member coupled with a lifting member. One of skill in the art recognizes that there are many known designs for providing both sliding and lifting movement in a device. For example, Showers and Skubic teach the recited combination of bars, blocks, and guide pins. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the sliding and lifting members taught by Egger with the designs taught by Showers and Skubic since they

are known functional equivalents and it has been held that the configuration was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration claimed was significant. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

8. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, and Egger as applied to claim 44 above, and further in view of Rosato (Rosato, D.V, D.V. Rosato, and M.G. Rosato, *Injection Molding Handbook (3rd Edition)*, Springer-Verlag, 2000, pages 305-306 and 371-373, already of record). Travaglini is silent regarding means for attaching mold parts together. Rosato teaches that connecting straps must be used during

9. Claims 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, and Egger as applied to claim 44 above, and further in view of Fruntzek. Travaglini, Bryce, and Egger are silent regarding means for connecting and disconnecting water, air, and electrical utilities in the mold. The use of quick disconnect couplings in modular mold systems is well known in the art. For example, Fruntzek teaches a mold in which water, air, and electrical connections are positioned in the line of opening so that they may be automatically coupled and uncoupled as the mold is installed (see column 7, lines 6-16). The quick disconnects taught by Fruntzek allow automatic disengagement and reengagement as the mold is moved in the mold opening/closing direction during removal and installation, and further are located within the upper periphery of the mold. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus

taught by Travaglini, as modified by Bryce, Egger, and Rozema, with the quick disconnect configuration taught by Fruntzek for the benefit of automatically coupling and uncoupling the utility connections to the mold sections.

10. Claims 56, 58, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Travaglini in view of Bryce and the '289 patent. Regarding claim 56, Travaglini teaches a stack injection mold apparatus (see column 8, line 58 and Figure 7) comprising a moving core assembly (see column 8, lines 58-60; see core part 52 and mold base 104 in Figure 7) and a stationary core assembly which faces opposite the direction of the moving core assembly (see Figure 7, wherein the incompletely illustrated mirror image of core part 52 and mold base 104 are mounted on the stationary platen), each core assembly including a master core plate (see mold base 104 in Figure 7) and a core plate (see core part 52 in Figure 7) releasably secured to the master core plate (see column 8, lines 58-59, wherein core plate 52 is mounted to mold base 104 and can therefore inherently be unmounted from the mold base as well; see also column 5, lines 15-35, wherein a mold assembly comprising a core part and a cavity part is removable from the mold base). While the mold apparatus depicted in Figure 7 of Travaglini does not show a core insert secured to the each of the core plates, Travaglini separately teaches the use of such core inserts in prior art stack molds (see core inserts 102 in Figure 2b), as is well known in the art. The stack injection mold apparatus taught by Travaglini further comprises an intermediate cavity assembly (see column 8, lines 60-61; see cavity part 53, intermediate member 110, and the unlabeled hot runner nozzles in Figure 7) comprising central manifold plates having

opposing sides, one side facing the stationary core assembly and the other side facing the moving core assembly (see Figure 7, where the left side of the left intermediate member 110 faces the moving core assembly and the right side of the right intermediate member faces the stationary core assembly), one cavity plate releasably secured to each opposing side of the manifold plates with one cavity plate facing the core plate of the stationary core assembly and the other cavity plate facing the core plate of the moving core assembly (see Figure 7, wherein cavity plates 53 are attached to intermediate members 110; as above, cavity plates 53 are part of the mold assembly which can be removed from the mold and therefore they must be releasably secured). While the mold apparatus depicted in Figure 7 of Travaglini does not show a cavity insert secured to each of the cavity plates, Travaglini separately teaches the use of such cavity inserts in prior art stack molds (see cavity inserts 112 in Figure 2b), as is well known in the art. As modified with the core and cavity inserts shown in Figure 2b, the cavity and core plates and inserts together form the cavities of the mold (see Figure 7, where the cavities are depicted as thin plates between plates 51 and 53). The cavity assembly and moving core assembly taught by Travaglini are movable by moving mold press means in such a manner that the cavity and core inserts are separated by equal amounts on either side of the cavity assembly when the mold is in an open position (see column 2, lines 58-60 and Figure 2c), and the cavity and core inserts are mated together simultaneously defining a cavity between each pair of inserts (see Figure 7) into which molten plastic may be injected from a molten plastic source to form the shape of a desired article (see column 2, lines 61-65). In Figures 3A, 4, and 6, Travaglini

depicts embodiments of the mold assembly which is to be removed from the mold base as a unit (see column 5, lines 31-35). Each mold assembly comprises a core plate 50, a cavity plate 53, and, as modified above, core and cavity inserts.

Apart from teaching that the mold assemblies are to be removed from the mold apparatus as separate units, Travaglini is silent regarding any adaptations which may support the removal operation. Bryce teaches the details of the well known procedures for installing a mold in an injection molding machine, which one of skill in the art recognizes would be followed essentially ***in reverse*** for removing a mold from a machine. Thus, in order to remove the mold assemblies taught by Travaglini from the stacked injection mold apparatus, one would first close the mold completely (see Bryce, step 11, page 76), attach a connecting strap between the core and cavity halves of the mold assembly (see Bryce, step 10, page 75 and the connecting strap shown in Figure 4-1 on page 73), and attach a hoisting mechanism such as a chain fall hook to the connecting strap (see Bryce, step 10, page 75). The clamps holding the mold to one of the platens would then be removed (see Bryce, step 9, page 75) and the clamp unit operated to separate the platens such that the mold assembly is separated from the platen from which the clamps were removed (see Bryce, step 8, pages 74-75). The clamps holding the mold to the other platen would then be removed (see Bryce, step 7, page 74) and the mold assembly lifted in a direction perpendicular to the direction of opening and closing the mold using the hoisting mechanism to remove it from the mold clamp area (see Bryce, step 4, pages 72-73). One of skill in the art recognizes that, because the hot runner nozzles in the intermediate cavity assembly protrude into the

cavity plates, the proper order for removing the mold assemblies from the stack mold shown in Figure 7 of Travaglini would be removing the clamps holding the mold assemblies to the intermediate assembly, opening the clamp unit so that the mold assemblies are clear of the hot runner nozzles, removing the clamps from the other platens, and hoisting the mold assemblies out of the mold clamp area. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini with means for securing the mold assemblies together along their peripheries because it is not safe to allow the parts of the assemblies to separate while they are being moved (see Bryce, step 1, page 72).

Travaglini and Bryce do not teach roller guides secured to the master core plates which rollingly engage the core plates and form a guide path perpendicular to the motion of the mold machine. The ‘289 patent teaches a mold apparatus comprising modular mold assemblies including core and cavity sections and master core plates which remain in the molding machine when the modular mold assemblies are removed (see Figures 1 and 3). The master core plate taught by the ‘289 patent comprises roller guides secured thereto which guide the mold assembly along a path perpendicular to the motion of the mold machine (see rollers 67 in Figures 1 and 3). The core plate taught by the ‘289 patent comprises a contoured slot (see column 3, lines 35-50). Regarding claim 46, the ‘289 patent teaches clamps positioned along the guide paths which clamp the mold assembly to the master core plate at the position of the guide path (see clamps 153 in Figure 1). Regarding claim 58, the ‘289 patent teaches clamps positioned along the guide paths which clamp the mold assembly to the master core

plate at the position of the guide path (see clamps 153 in Figure 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini and Bryce with the roller guides and clamps taught by the '289 patent for the benefit of capturing and carefully guiding the mold assemblies along the master core plates when removing and installing them in the mold machine (see the '289 patent, column 4, lines 55-60).

Regarding claim 65, Travaglini teaches an apparatus further comprising an ejector plate operable to assist in the ejection of the molded article (see column 6, lines 49-53).

11. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, and the ‘289 patent as applied to claim 56 above, and further in view of the ‘935 patent. The ‘289 patent teaches a method wherein the roller guides guide the core plate relative to the master core plate along a contoured slot defined in the core plate, the slot shaped to allow the core plate to move vertically and parallel to the master core plate for an initial distance and then spaced away from the master core plate for a further distance (see column 3, lines 35-50), but does not teach that the contoured slot causes disengagement of quick disconnect couplings between plates. In an extension of the '289 patent, the '935 patent teaches a mold assembly wherein water conduits and connector plates are provided, as well as quick disconnects (see disconnects 310 and 311 in Figures 7, 10, and 11) which are automatically connected and disconnected when the mold assembly is inserted and removed, respectively from the adapter plates 304 and 305 (see column 8, lines 16-19). Since

the disconnects 310 and 311 are configured in a vertical direction (see Figure 7), it would be obvious to one of skill in the art that lifting the mold assembly in the vertical direction, guided by the roller guides, would result in disengagement of the quick disconnect couplings. It would have been obvious to one ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini, Bryce, and the '289 patent with the quick disconnects taught by the '985 patent for the benefit of simplifying the mold removal process and ensuring proper connection upon mold installation (see the '985 patent, column 8, lines 28-32).

12. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, and Egger as applied to claim 56 above, and further in view of Rozema (U.S. Patent No. 5,846,472, already of record). While Travaglini, Bryce, and the '289 patent do not teach an apparatus wherein the positions of the cavity plates and cavity inserts are interchanged with the positions of the core plates and core inserts, such stack injection mold apparatus are known in the art. For example, Rozema teaches an injection mold with this configuration (see Figure 1). It would have been obvious to one of ordinary skill in the art to have modified the apparatus taught by Travaglini, as modified by Bryce and the '289 patent, with the core and cavity configuration taught by Rozema for the benefit of providing rapid mold change capabilities in the known mold configuration taught by Rozema.

13. Claims 60-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, the '289 patent, and Rozema as applied to claim 59 above, and further in view of Fruntzek. Travaglini, Bryce, the '289 patent, and

Rozema are silent regarding means for connecting and disconnecting water, air, and electrical utilities in the mold. The use of quick disconnect couplings in modular mold systems is well known in the art. For example, Fruntzek teaches a mold in which water, air, and electrical connections are positioned in the line of opening so that they may be automatically coupled and uncoupled as the mold is installed (see column 7, lines 6-16). The quick disconnects taught by Fruntzek allow automatic disengagement and reengagement as the mold is moved in the mold opening/closing direction during removal and installation, and further are located within the upper periphery of the mold. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini, as modified by Bryce, the '289 patent, and Rozema, with the quick disconnect configuration taught by Fruntzek for the benefit of automatically coupling and uncoupling the utility connections to the mold sections.

14. Claims 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Travaglini, Bryce, and the '289 patent as applied to claim 56 above, and further in view of Fruntzek. Travaglini, Bryce, and the '289 patent are silent regarding means for connecting and disconnecting water, air, and electrical utilities in the mold. The use of quick disconnect couplings in modular mold systems is well known in the art. For example, Fruntzek teaches a mold in which water, air, and electrical connections are positioned in the line of opening so that they may be automatically coupled and uncoupled as the mold is installed (see column 7, lines 6-16). The quick disconnects taught by Fruntzek allow automatic disengagement and

reengagement as the mold is moved in the mold opening/closing direction during removal and installation, and further are located within the upper periphery of the mold. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Travaglini, as modified by Bryce and the '289 patent with the quick disconnect configuration taught by Fruntzek for the benefit of automatically coupling and uncoupling the utility connections to the mold sections.

Response to Arguments

15. Applicant's arguments, see page 11, filed 16 July 2009, with respect to the drawings have been fully considered and are persuasive. The objection of 16 January 2009 has been withdrawn.

16. Applicant's arguments, see page 12, filed 16 July 2009, with respect to claims 11, 12, 16-28, and 41-43 have been fully considered and are persuasive. The rejection under 34 U.S.C. 112, second paragraph, of 16 January 2009 has been withdrawn since the claims have been canceled.

17. Applicant's arguments with respect to claims 44-65 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM P. BELL whose telephone number is (571)270-7067. The examiner can normally be reached on Monday - Thursday, 8:00 am - 5:30 pm; Alternating Fridays, 8:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wpb

/Richard Crispino/
Supervisory Patent Examiner, Art Unit 1791